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J GRANT HOUSTON AXSUN TECHNOLOGIES INC 1 FORTUNE DRIVE BILLERICA, MA 01821			JOHNSON, JONATHAN J	
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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 09/645,827  
Filing Date: August 25, 2000  
Appellant(s): FLANDERS ET AL.

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J. Grant Houston  
For Appellant

**MAILED**  
JUL 14 2004  
**GROUP 1700**

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed April 26, 2004.

**(1) *Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

**(3) *Status of Claims***

The statement of the status of the claims contained in the brief is incorrect. A correct statement of the status of the claims is as follows:

This appeal involves claims 1-8 and 17-20.

Claims 9-16 are withdrawn from consideration as not directed to the elected invention.

**(4) *Status of Amendments After Final***

The appellants' statement of the status of amendments after final rejection contained in the brief is correct.

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**(5) *Summary of Invention***

The summary of invention contained in the brief is correct.

**(6) *Issues***

The appellants' statement of the issues in the brief is correct.

**(7) *Grouping of Claims***

Appellants' brief includes a statement that claims 1-8 and 17-20 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

**(8) *Claims Appealed***

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(9) *Prior Art of Record***

Wolfgang et al., "Flexible Automated Assembly of Micro-Optical Elements (Optical SMD)"  
SPIE, Vol. 2906, , Microrobotics: Components and Applications (December 1996), pp. 162-170.

**(10) *Grounds of Rejection***

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-8 and 17-20 are rejected under 35 U.S.C. 102(b) as being anticipated by  
Wolfgang et al. (SPIE Vol. 2906, Microrobotics: Components and Applications). With respect

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to Claims 1 and 3-8 and 17, 19, and 20, Wolfgang et al. teaches a supply area (Figure 6, Stock); a pick and place machine that picks and places the components to the work area (abstract and Section 5, first paragraph); and an aligner that characterizes the positions of the components on the bench and mechanically adjusts the relative position (section 5.3, paragraphs 1-4); an aligner that activates/energizes a workpiece and detects an optical signal and adjusts the components (Section 5.3, Paragraphs 1-4 and Figure 9a, measuring system); and a two jaw gripper (Figure 9a, gripper). It is the examiner's position that how the system operates is a process limitation that holds little patentable weight in an apparatus claim.

With respect to Claims 2 and 18, the teachings of Wolfgang et al. are the same as relied upon in the rejection of Claim 1 and 17. Wolfgang et al. teaches laser welding (abstract and Figure 4, laser). It is the examiner's position that how the components are secured are process limitations that hold little patentable weight in an apparatus claim.

**(11) Response to Argument**

Appellants argue that "Wolfgang [et al.] disclose a system in which the UTH's [universal tripod holders] are placed on a bench with a gripper [ ]. The UTH's are then fine positioned until they are properly aligned in the optical link[.] Only then are the UTH's attached to the optical bench [ ] of the Wolfgang [et al.]" The examiner agrees. Appellants goes on to argue that Wolfgang [et al.] does not teach the claim 1 limitation requiring an "optical system aligner that characterizes positions of the optical components, which have been attached to the optical benches, and mechanically adjusts the relative positions of the attached optical components."

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The examiner disagrees. The examiner recognizes that a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). It is the examiner's position that Wolfgang et al. teach each and every element as set forth in the claim. Wolfgang et al. teach the "optical system aligner that characterizes positions of the optical components" claim limitation when they describe an optical sensing system that controls the alignment of the optical element (Wolfgang et al., sections 5.2 and 5.3). Wolfgang et al. teach the "mechanically adjusts the relative positions of the attached optical components" claim limitation when they teach that the Universal Tripod Holder and the positioning stages are manipulated until the "optimal position and orientation" has been reached (Wolfgang et al., section 5.2). Wolfgang et al. does this by moving the Universal Tripod Holder in a downwards direction while rotating it perpendicularly to the mounting plate and at the same time moving the mounting plate (Wolfgang et al., section 5.1 caption to figure 6 on page 166).

Lastly, Wolfgang et al. teach the "attached to the optical benches" claim limitation when they teach simultaneously pressing and rotating the Universal Tripod Holder onto the mounting plate in order to ensure good position stability via the optical sensing system (Wolfgang et al., section 4.2 on page 165 and sections 5.1 and 5.2 on page 166). During patent examination, the pending claims must be "given the broadest reasonable interpretation consistent with the specification." Appellants always have the opportunity to amend the claims during prosecution, and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. In re Prater, 415 F.2d 1393, 1404-05, 162 USPQ

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541, 550-51 (CCPA 1969). Stated differently, the words in a claim are generally not limited in their meaning by what is shown or disclosed in the specification. It is only when the specification provides definitions for terms appearing in the claims that the specification can be used in interpreting claim language. In re Vogel, 422 F.2d 438, 441, 164 USPQ 619, 622 (CCPA 1970). To put it another way, when not defined by Appellants in the specification, the words of a claim must be given their plain meaning. They must be read as they would be interpreted by those of ordinary skill in the art. In re Sneed, 710 F.2d 1544, 218 USPQ 385 (Fed. Cir. 1983). In the instant case, Appellants have not defined the term “attached” in the specification. While the examiner agrees that Appellants’ specification discusses an optical system aligner that adjusts the optical component after it has been welded (Appellants’ specification, pages 25-26), this teaching is not enough to limit the term “attached” to mean “welded.” In re Vogel, 422 F.2d 438, 441, 164 USPQ 619, 622 (CCPA 1970). Because Appellants have not defined the term “attached” in the specification, it is the examiner’s position that one of ordinary skill in the art would give a broader interpretation to the term and construe it to mean “be in contact with” as defined by the American Heritage Dictionary, Fourth Edition. Based on this interpretation, it is the examiner’s position that Wolfgang et al. meet the claim limitation when they teach the optical sensing system characterizing the position of the optical components (section 5.2, page 166) which are in contact with the optical benches (the “attachment” occurring when the Universal Tripod Holder is pressed onto the mounting plate as explained in Wolfgang et al., section 5.1 and 5.2 on page 166), and mechanically adjusts the relative positions of the optical components (the adjustment occurring when the Universal Tripod Holder and mounting plate are

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rotated to ensure good position stability as explained in Wolfgang et al., sections 5.1 and 5.2 on page 166).

Appellants next argue that the Wolfgang article does not teach the claim 17 limitation requiring a “means for characterizing the positions of the optical components attached to the optical benches, and for mechanically adjusting the relative positions of the optical components attached to the benches.” That is, Appellants argue that the Examiner refuses to consider all of the functional features of the means plus function clause of claim 17. The examiner disagrees. As stated in the previous office action, the examiner recognizes that invocation of 35 U.S.C. 112, sixth paragraph requires that the examiner interpret the expression as covering the structure, material, or acts described in the specification. In re Donaldson, 16 F.3d 1189, 29 USPQ2d 1845 (Fed. Cir. 1994). In order to invoke 35 U.S.C. 112, sixth paragraph Appellants must satisfy a 3-Prong Analysis: 1) must use “means for” or “step for”; 2) must include function; and 3) must not be modified by sufficient structure. see Id. In the instant case, with respect to the first prong, Appellants use “means for” language when they claim “means for characterizing” and “means for . . . mechanically adjusting” (Appellants claim 17). With respect to the second prong, Appellants use the words “characterizing” and “adjusting” to establish a specific function for the claimed optical system production line. That is, the examiner finds that that the “means for” language is modified by functional language. With respect to the third prong, the examiner believes that both the “means for focusing” and “means for . . . mechanically adjusting” claim limitation are not modified by sufficient structure.

In order to establish a prima facie case of equivalence, the prior art element must perform the identical function specified in the claim in substantially the same way, and produce



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substantially the same result as the corresponding element disclosed in the specification. Kemco Sales, Inc. v. Control Papers Co., 208 F.3d 1352, 54 USPQ2d 1308 (Fed. Cir. 2000). First, with respect to the “means for characterizing” claim limitation, the examiner finds that the prior art performs the same function as Appellants invention, namely welding optical components onto an optical bench (compare Wolfgang et al., section 5.2, figure 8c to Appellants’ specification page 2, fourth full paragraph to page 3, third full paragraph). The examiner would like to note that-- just as in Appellants’ invention--Wolfgang et al. teach welding a component onto an optical bench having sub-micron alignment accuracy (Wolfgang et al., section 7, ll. 3-4). Second, the examiner finds the system in Wolfgang et al. functions in substantially the same way as the bonding system in Appellants invention. In Appellants invention a laser and corresponding laser detector, which operates after bonding, is used to determine whether the component is properly aligned. (Appellants’ specification, page 26, first paragraph and see generally Appellants’ specification, page 19, fourth paragraph). In Wolfgang et al., a laser and corresponding laser detector, which operates before bonding (Wolfgang et al., section 5.2, ll. 3-5), is used to determine whether the component is properly aligned (Wolfgang et al., section 5.3, second full paragraph). While it is true that the characterizing system of Wolfgang et al. does not function in exactly the same way as the characterizing system in the instant case, the examiner finds that the two systems still meet the test for equivalence under 35 U.S.C. 112, sixth paragraph as they both still function in substantially the same way. That is, it is the examiner’s position that merely because Appellants’ system operates after the bonding step while Wolfgang et al. system operates prior to bonding step does not overcome the substantial similarities of the two systems function, namely using a laser and corresponding laser detector to determine when an optical

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component is aligned on an optical bench (compare Appellants' specification, page 26, first paragraph and see generally Appellants' specification, page 19, fourth paragraph to Wolfgang et al., section 5.2, ll. 3-5 and section 5.3, second full paragraph). Lastly, the examiner finds that the characterizing system of Wolfgang produces substantially the same result as the characterizing system in the instant case, namely the sub-micron alignment of the optical component to the optical bench. The examiner would like to point out that Appellants have not provided any objective evidence showing how using a laser detector after bonding rather than prior to bonding would produce a different result. Appellants only argue that it would be difficult to achieve sub-micron alignment accuracies using the Wolfgang et al. system (Appellants brief, page 4, first paragraph). This is not enough to establish that the characterizing system of Wolfgang et al. does not give the same results as the characterizing system of the instant application. Arguments of counsel cannot take the place of evidence in the record. In re Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965). In any event, the examiner would like to point out that Wolfgang et al. specifically teaches that their system can reliably provide sub-micron alignment accuracies (Wolfgang et al., section 7, lines 3-4).

With respect to the "means for . . . mechanically adjusting" claim limitation the examiner finds that the prior art performs the same function as Appellants invention, namely arranging a component onto an optical bench (compare Wolfgang et al., section 5.2, figure 8c to Appellants' specification page 2, fourth full paragraph to page 3, third full paragraph). Second, the examiner finds the system in Wolfgang et al. functions in substantially the same way as the bonding system in Appellants invention. Appellants' invention involves using jaws that grasp the alignment structure, after it has been bonded to the bench, and manipulates it until an optical

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laser signal is maximized (Appellants' specification, page 26, first paragraph and see generally Appellants' specification, page 19, fourth paragraph). Wolfgang et al. involve using jaws that grasp the alignment structure, prior to bonding, and manipulates it until the laser signal is maximized and then maintains its grasp during welding (Wolfgang et al., section 5.2 and figure 8c). While it is true that the adjusting system of Wolfgang et al. does not function in exactly the same way as the system of Appellants, the examiner finds that the two systems still meets the test for equivalence under 35 U.S.C. 112, sixth paragraph they still function in substantially the same way. That is, it is the examiner's position that merely because Appellants' system operates after the bonding step while Wolfgang et al. system operates prior to and during the bonding step does not overcome the substantial similarities of the two systems function, namely using a gripper to compensate for the misalignment of the optical component (compare Appellants' specification, page 26, first paragraph to Wolfgang et al., section 5.2, ll. 3-6 and figure 8c). Lastly, the examiner finds that the system of Wolfgang produces substantially the same result as the system of Appellants, namely the sub-micron alignment of the optical component to the optical bench. The examiner would like to point out that Appellants have not provided any objective evidence showing how using a laser detector after bonding rather than prior to bonding would provide a different result. Appellants only argue that it would be difficult to achieve sub-micron alignment accuracies using the Wolfgang et al. system (Appellants brief, page 4, first paragraph). This is not enough to establish that the system of Wolfgang et al. does not give the same results as the system of Appellants. Arguments of counsel cannot take the place of evidence in the record. In re Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965). In any event, the examiner would like to point out that Wolfgang et al. specifically teaches that their system can reliably

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provide the same results as the system of Appellants, namely sub-micron alignment accuracies (Wolfgang et al., section 7, ll. 3-4)

Appellants next argue that Wolfgang et al. does not teach the claim 2 and claim 18 limitation requiring solder bonding. The examiner agrees that Wolfgang et al. does not explicitly recite solder bonding, however, a claim containing a “recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987) (The preamble of claim 1 recited that the apparatus was “for mixing flowing developer material” and the body of the claim recited “means for mixing ..., said mixing means being stationary and completely submerged in the developer material”. The claim was rejected over a reference which taught all the structural limitations of the claim for the intended use of mixing flowing developer. However, the mixer was only partially submerged in the developer material. The Board held that the amount of submersion is immaterial to the structure of the mixer and thus the claim was properly rejected.). In the instant case, it is the examiner’s position that the intended use of solder bonding does not result in a structural difference between the claimed invention and the prior art as the laser of Wolfgang et al. can be used to bond the optical component to the bench by providing the necessary heat or energy required to melt the solder (e.g., laser could be used to melt screen-printed solder positioned underneath the optical component, solder coated or pretinned on the leads of the optical component, solder balls or bumps or columns positioned underneath the optical component). Therefore, it is the examiner’s position that since the prior art structure is capable of performing the intended use, then it meets the claim. The examiner

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would like to note that Appellants have not argued or provided any extrinsic evidence showing that a laser cannot perform in the claimed manner. Appellants merely argue that Wolfgang et al. does not teach solder bonding.

Appellants next argue that Wolfgang et al. does not teach the claim 7 limitation requiring that the “pick and place machine is a flip-chip bonder”. The examiner agrees that Wolfgang et al. does not explicitly recite that the “pick and place machine is a flip-chip bonder”, however, a claim containing a “recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987) (The preamble of claim 1 recited that the apparatus was “for mixing flowing developer material” and the body of the claim recited “means for mixing ..., said mixing means being stationary and completely submerged in the developer material”. The claim was rejected over a reference which taught all the structural limitations of the claim for the intended use of mixing flowing developer. However, the mixer was only partially submerged in the developer material. The Board held that the amount of submersion is immaterial to the structure of the mixer and thus the claim was properly rejected.). In the instant case, it is the examiner’s position that the intended use of a flip chip bonder does not result in a structural difference between the claimed invention and the prior art as the gripper of Wolfgang et al. can be used to bond flip chips (compare Wolfgang et al. figure 3, mini-gripper and section 5, ll. 5-7 to Appellants’ specification Figure 26, items 710a and 710b). Therefore, it is the examiner’s position that since the prior art structure is capable of performing the intended use, then it meets the claim. The examiner would like to note that Appellants have not argued or

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provided any extrinsic evidence showing that a gripper cannot perform in the claimed manner.

Appellants merely argue that Wolfgang et al. does not teach a flip chip bonder.

Finally, Appellants argue that the examiner refuses to give all of the claimed invention patentable weight. The examiner understands that "a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Verdegaal Bros.v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). While it is true that the previous office action stated "how the system operates is a process limitation that holds little patentable weight in an apparatus claim," the examiner was referring to the operation of the optical system vis-à-vis the solder bonding and flip-chip bonder. The examiner was not suggesting that the claimed optical system aligner does not impart structure to the claim.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

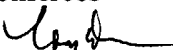


Jonathan Johnson  
Examiner  
Art Unit 1725

jj

June 23, 2004

Conferees

  
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